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10/824,799	04/15/2004	Terry Lee Culp	20959/2101	6653

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EXAMINER
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WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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12/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/824,799

Applicant(s)

CULP, TERRY LEE

Examiner

Jeff Wollschlager

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment to the claims filed August 22, 2007 has been entered. Claims 13-20 have been canceled. Claims 1-12 are pending and under examination.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 1 and 12, the limiting effect of the recitation "colorless" is unclear. It is unclear when the enamel material is considered to be colorless. It is noted that the enamel material ranges generally from white to grey to black and that the disclosed enamel materials have varying color coordinates, opacity and translucency (Example 1). The intended limitation appears to be that the colorless enamel material contains a polymerizable resin, filler and catalyst but does not contain added pigments. However, it is also unclear what fillers are considered to be colorless fillers and what fillers are considered to add color. In this regard, the apparent limitation is that the tooth is matched with one of the three characterized enamels found in Example 1. However, these limitations (L\*, a\*, b\*, CR, T) are not recited in claims 1 or 12 and as such the limiting effect of "colorless" remains unclear. An appropriate amendment to the claims is required to clarify the metes and bounds of the claims.

As to claim 9, the limiting effect of low, medium or high value is unclear. It is unclear when a material has a low, medium or high value. It is noted that any value may be characterized as having a low, medium or high value.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boon (U.S. Patent 4,802,850) in view of Waknine et al. (U.S. Patent 5,348,475).

Regarding claim 1, Boon teaches a dental color matching system wherein a colorless, transparent or translucent, enamel bead is matched with the value shade of a natural tooth. Boon also teaches matching the shade of the tooth, which comprises the dentin layer with other colored beads (Abstract; col. 1, lines 48-57; col. 3, lines 14-36; col. 5, lines 3-8; col. 8, lines 18-60). Boon does not expressly describe the applying and preparation steps as currently claimed. However, Waknine et al. disclose a method of applying and curing dental restorations wherein the restoration is applied intraorally by the dentist in a series of layers of appropriate composition and color to the tooth, including a dentin layer and an enamel layer (col. 5, lines 15-67).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to combine the teachings of Boon and Waknine et al. to employ the multiple shade determinations disclosed by Boon with the multiple layered applications of different shades disclosed by Waknine et al. for the purpose as disclosed by Waknine et al. of ensuring complete curing of the restorative dental resin with desired properties (col. 2, lines 1-7) or as disclosed by Boon of providing a better color match (Abstract).

As to claim 2, Waknine et al. disclose layers of material are applied and polymerized (col. 5, lines 15-67).

As to claim 3, Waknine et al. employ light curing (Abstract).

As to claim 6, Waknine et al. disclose employment of a binder (col. 3, lines 15-18).

As to claim 7, Waknine et al. disclose polishing the tooth (col. 5, lines 64-67).

As to claim 8, Waknine et al. disclose trimming the restoration (col. 5, lines 64-67).

As to claim 9, Boon discloses matching an enamel bead that is colorless, transparent or translucent (col. 8, lines 18-60). This material has a low, medium or high value. Further the enamel material employed by Waknine has a low, medium or high value (col. 5, lines 15-67).

As to claims 10 and 11, Waknine et al. disclose materials including a polymerizable resin, fillers and catalysts (col. 3, lines 6-18).

Claims 4, 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boon (U.S. Patent 4,802,850) in view of Waknine et al. (U.S. Patent 5,348,475), as applied to claims 1-3 and 6-11 above, in view of applicant's admitted prior art.

As to claims 4, 5 and 12, Boon in view of Waknine et al. disclose the method of claim 1 as discussed above. Boon does not disclose the steps of cleaning the tooth, removing a portion of the enamel and dentin layers (e.g. decayed material), and reshaping the tooth for cosmetic restoration or applying other special effects. However, as admitted in the instant application, published as U.S. Patent Application Publication 2005/0132928, these are conventional steps that are routinely practiced in the art (paragraphs [0008-0016, 0052-0054]).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to combine conventional steps with the teaching of Boon and

Waknine for the purpose of producing a desired dental restoration, as is routinely practiced in the art.

### ***Response to Arguments***

Applicant's arguments filed August 22, 2007 regarding the 112 second paragraph rejection have been considered but they are not persuasive. The examiner agrees that the lack of a pigment helps to clarify the term colorless. However the metes and bounds of being colorless to the naked eye remains unclear. For example, it remains unclear whether a translucent appearance is within the scope of the claim. It is also unclear how values between white and black are understood to be colorless. Further it is unclear what additives and fillers beyond "pigments" can be employed and still be considered to yield a colorless material (e.g. fluorescent materials, non-pigmented fillers, etc.). Regarding the limitation of claim 9, saying the "the value is a low, medium or high value", renders the scope of the indefinite. As written, the scope of the claim is reasonably understood to be that the value is any value since it is not limited to a selection from a limited group of three distinct items (ie.any value would fall within the range of low, medium and high). As such, it is unclear how the claim further limits the claim from which it depends. The claim should be amended to more particularly and distinctly claim how the matching process employs low, medium and high value shades.

Applicant's arguments filed August 22, 2007 have been considered, but they are not persuasive. Applicant argues that Boon does not match the value of the enamel restoration with the value of the tooth enamel, but rather matches the color. This argument is not persuasive. Initially the examiner notes that Boon employs a colorless bead to simulate the dental enamel in the matching process and that this colorless match and that the layers are formed to simulate different stages of wear in natural teeth to facilitate the matching process (col. 3, lines 13-37).

Accordingly, by employing a colorless layer to match the enamel layer of teeth, Boon demonstrates a recognition that enamel is colorless and that employing a colorless bead is an effective way to match the tooth. The layers below the colorless layer of Boon are employed to match the other layers of the tooth. The combination with Wakine suggests employing a corresponding layer of matching material for each of the layers identified/matched by Boon.

Additionally and alternatively in a somewhat different interpretation, the examiner submits that applicant's claims are broader in scope than that which has been argued. For example, by matching the "color", Boon is matching the hue, chroma and value (the three components of color). As the claim employs open "comprising" language the scope of the claim does not exclude a process that matches all three of the color components as long as the value value shade of the tooth is matched by a colorless enamel restorative value. Under this interpretation, the combination also meets the claim.

The examiner submits the claims would need to be amended to distinguish over the combination set forth above under a reasonable interpretation of the claim language.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wang et al. (US 6,262,142) employ a translucent enamel material with no added pigments.

Van der Zel (US 7,086,863) discloses a method of producing an artificial tooth.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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JW

Jeff Wollschlager  
Examiner  
Art Unit 1791

CH  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER

December 7, 2007